

INTRODUCTION

*not understanding
a language
can create
a lot of stress*

Not understanding a language can create a lot of stress. Just imagine yourself cast into a situation where usual communication modes are severed. Things that were once trivial become incredibly difficult.

The language of mathematics is one that many people don't understand, and this creates a *lot* of stress. *Smart people* have trouble with lots of mathematical ideas: not necessarily because the ideas are hard, but because *they are being presented in a foreign language*.

*truth
and
language*

This book takes the time to teach the structure of the mathematical language. In particular, it emphasizes the importance of *truth*—the property of being true or false—which is fundamental to mathematics. By focusing on *Truth and Language*, people are taught how to *teach themselves mathematics*, as they're learning mathematics.

*characteristics of
the language
of mathematics*

Authors long ago recognized that students couldn't read their math books. Consequently, they began weeding out 'cryptic' math language, and replacing it with English. But a problem emerged: the language of *mathematics* is designed to say the kinds of things that mathematicians need to say—English isn't. English 'translations' had to make sacrifices, in:

- precision (the ability to make fine distinctions);
- conciseness (the ability to say things briefly); and
- power (the ability to express complex thoughts with relative ease).

*disadvantages of the
'English' approach*

With the 'English' approach, people *do not learn to read, write, or speak mathematics*. The 'English' approach fosters dependence, not independence—people always need a math translator. What a disservice. Instead, by learning the mathematical language, you'll become equipped with skills that enable you to learn future mathematics more easily—*without* a translator.

*this book
is meant
to be read
BY YOU*

This book is meant to be read *by you*. Without a math teacher. Do *all* the exercises—each one has a purpose. Complete solutions are included at the end of each section. If possible, read the book with a friend—it will be a lot more fun (and effective) if you verbalize the ideas.

*the occasional
fraction ...*

The book uses an occasional fraction (like $\frac{1}{2}$), decimal (like 0.5), and percent (like 3%). However, no arithmetic beyond basic addition, subtraction, multiplication and division (with numbers like 1, 2, and 3) is required.

This book is appropriate as a supplement to <i>any</i> math class, from high school through college-level.

*it takes time
to learn
a new language*

It takes time to learn a new language, so be patient with yourself. Keep in mind the good news: once you have some foundational aspects of a language mastered, then *you can begin to teach yourself*.

*One mathematical cat,
please!*

You're about to learn that x ('ex') is to mathematics as 'cat' is to English. The hope is that the next time you find yourself faced with x , you'll think:

One mathematical cat, please!

and laugh a bit ... making mathematics a little less stressful, and a little more fun.